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FROM THE AMERICAN PEOPLE



Access to clinical and community
maternal, neonatal and women's health services

We *can* Prevent Mortality and Morbidity from Preeclampsia

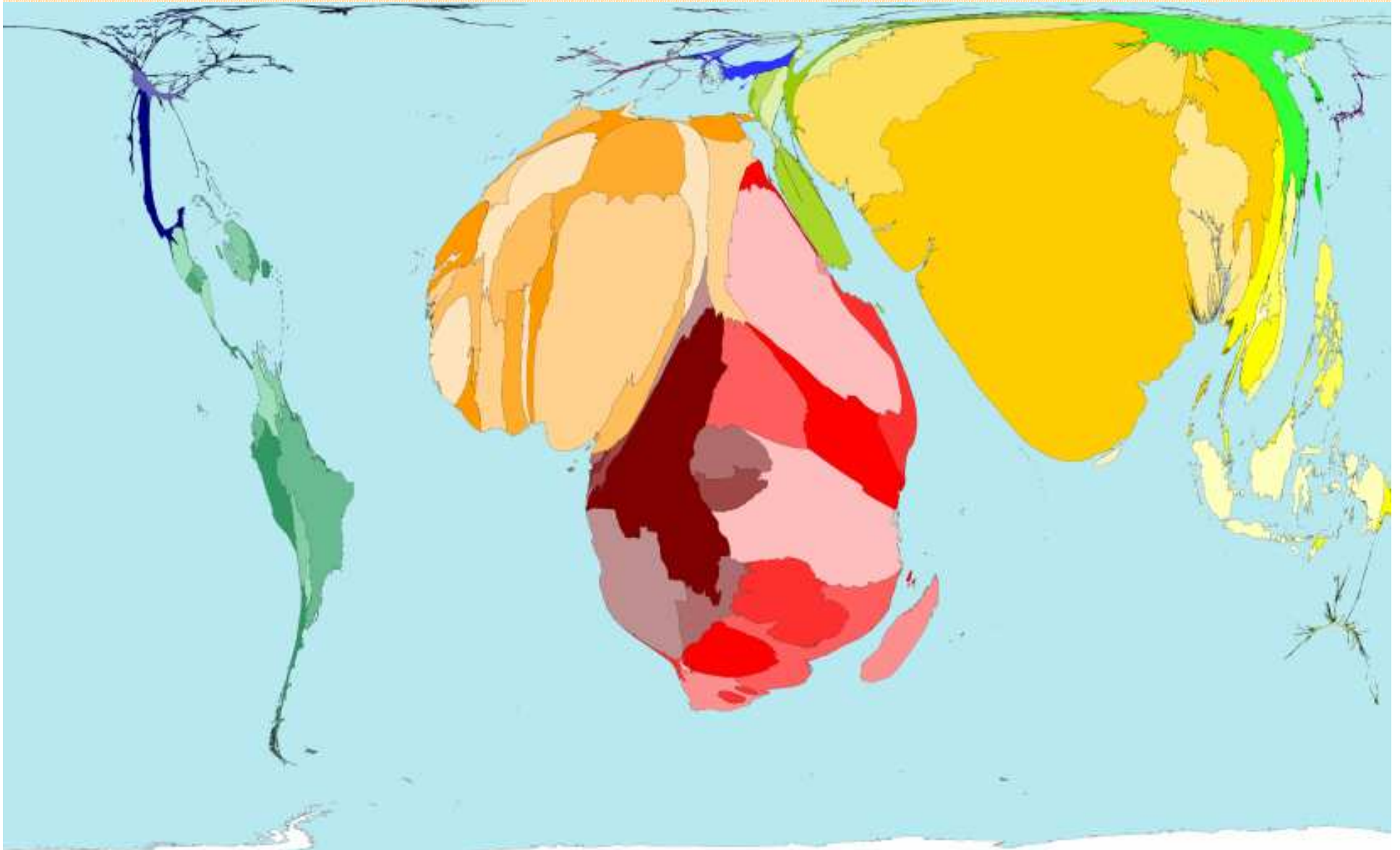
Harshad Sanghvi

Vice-President & Medical Director

JHPIEGO

JHPIEGO in partnership with Save the Children, Constella Futures, The Academy for Educational Development,
The American College of Nurse-Midwives and IMA World Health

Reminder: Where we need to focus



Why a New Focus on PE/E

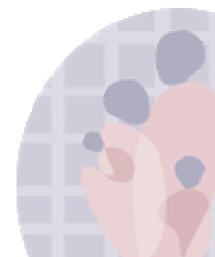
- Mortality and morbidity associated with PE/E shows little decline in more than 75% of low resource countries
- Disease targeted efforts within broad maternal and newborn care efforts are bearing fruit : eg Postabortion care, PPH, Infection prevention
- Interventions are possible at all levels of health care system and high levels of coverage is feasible even outside formal healthcare systems

Nepal Maternal Mortality Study 1998 & 2009
Cause of death

	1998	2009
PPH	37%	19%
Eclampsia	14%	21%

Source: Nepal maternal mortality study 2008-9 preliminary findings

**Not just because it needs to be done
But because it is possible**

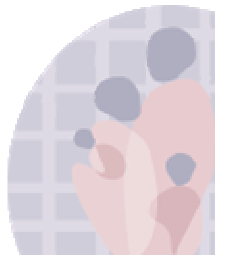


Pre-Eclampsia, Eclampsia: Magnitude

- Between 7-15% of pregnant women develop preeclampsia (high BP and proteinuria)
- Approximately 1-2% develop Eclampsia
- Contribute between 8-25% of maternal mortality
- Increased risk of perinatal mortality:
 - PE : RR 1.7-3.7
 - E : RR 2.9-13.7



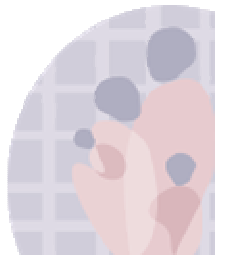
Photo: Staffan Bergstrom

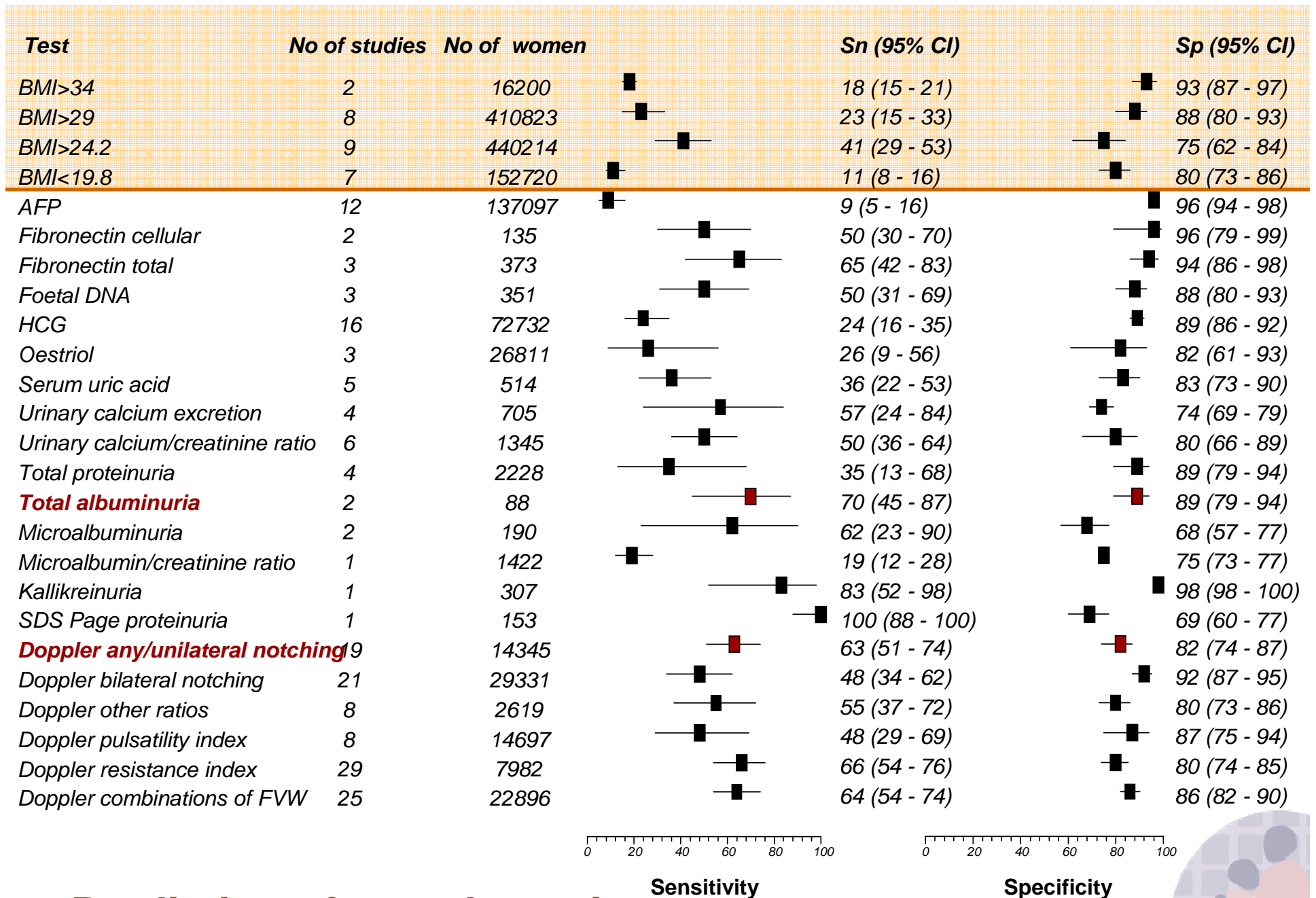


Strategies

- **Predicting Preeclampsia**
- **Primary Prevention**
- **Secondary prevention: detecting Preeclampsia and timely delivery**
- **Tertiary prevention: treatment of severe preeclampsia and Eclampsia**

- **Seeking simple, inexpensive and effective solutions that reach all pregnant women**





Prediction of preeclampsia

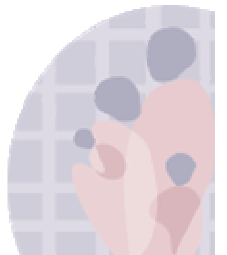
Source: Shahid Khan



Prediction of Preeclampsia

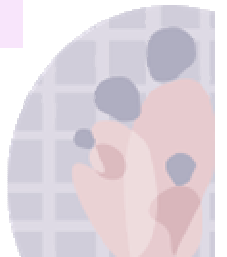
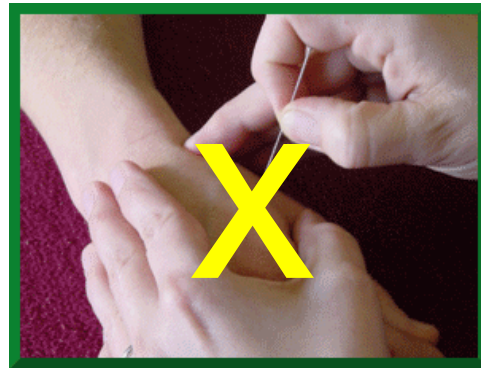
- **Risk factors not very useful:**
 - Primigravida are now about 50% of obstetric population
 - ? A significant proportion of PE occurs postpartum
- **No effective or affordable biochemical or biophysical predictor available**

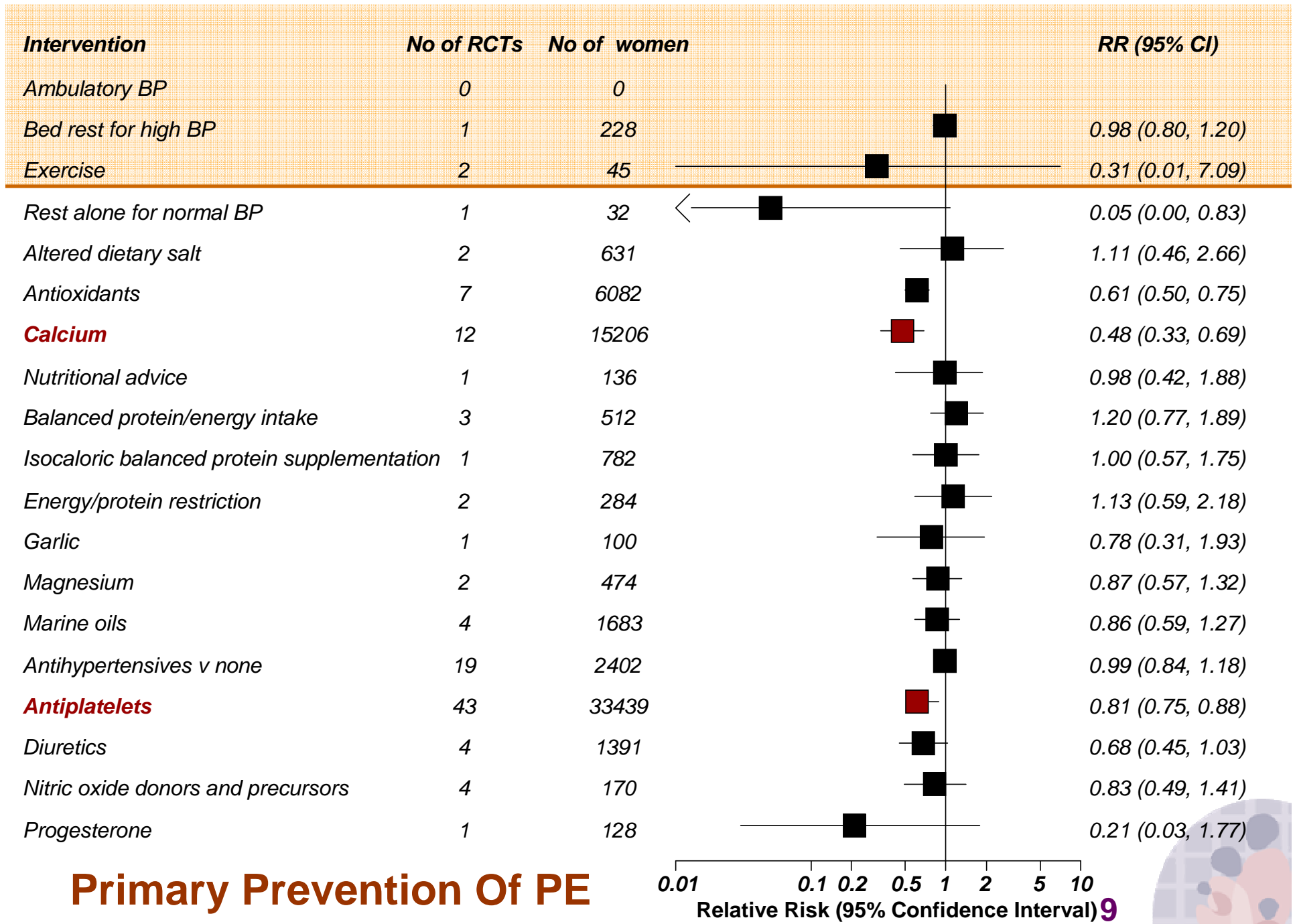
Implication: All pregnant women potentially at risk need prevention or early detection of PE



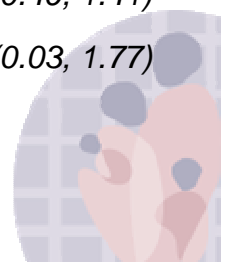
Preventing Preeclampsia

Almost 100 interventions tested in randomized trials





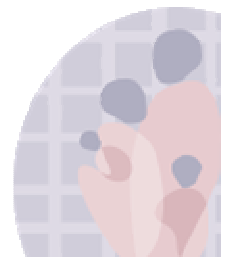
Primary Prevention Of PE



Mary Ellens's Question: Iron distribution has largely failed so what makes you think that you can do better with calcium?

- **Of 60 major micronutrient supplementation programs (cost approx \$1.3b) only 3 had a significant impact in reducing anemia in pregnancy. All three were CBD programs**
- **Acceptability of Calcium tabs low : Women do not like swallowing large chalky tabs**
- **Alternative calcium preps too expensive for large scale supplementation**
- **Food-milk fortification not suitable in rural settings where most produce is home grown**

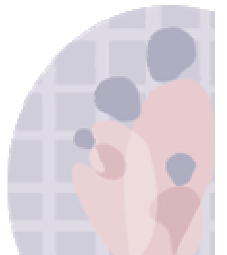
Best question: How can we make calcium more affordable and acceptable



If I Had the Chance...

ARTWORK FROM THE STREETS OF ASIA AND THE PACIFIC

- **Sprinkles:**
 - Calcium phosphate salt (powder) in Sachets
 - Calcium sprinkled on main meal
 - Tests on wide variety of Asian and African staple meals show very little taste or texture or smell effect
 - Will cost \$0.92 for 100 sachets
 - Field trials , CBD, will start in Nepal 2010



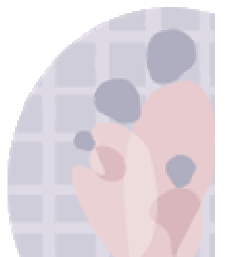
Detecting Preeclampsia

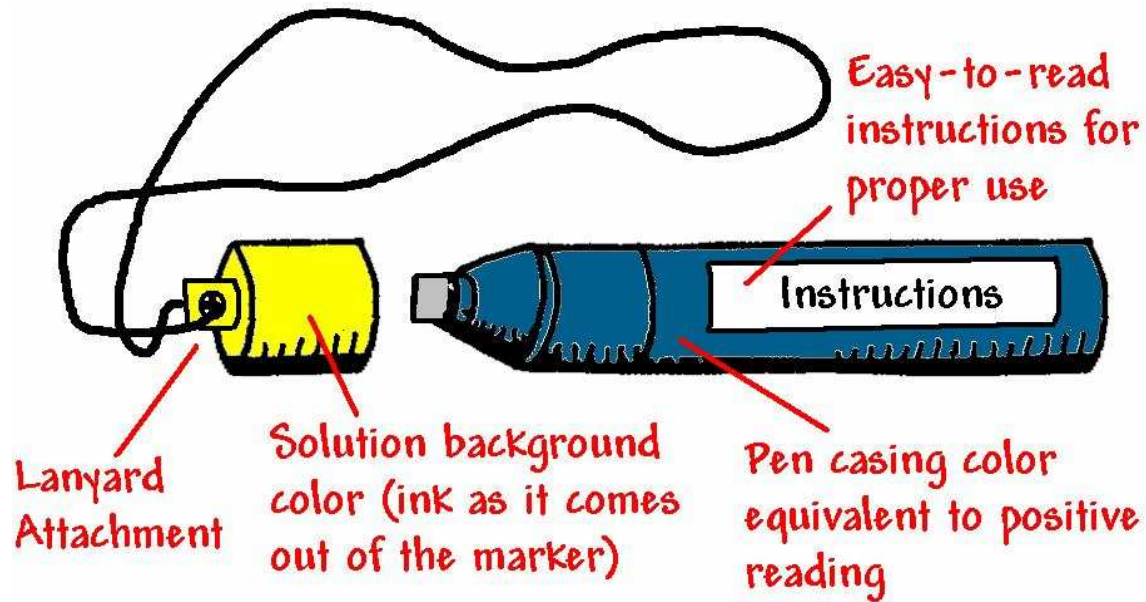
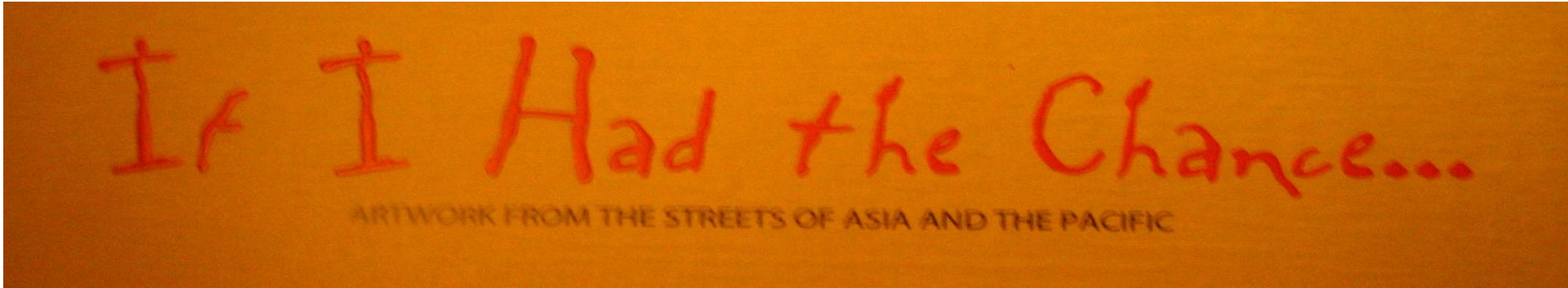
Measuring BP:

- Significant training needed to do BP well
- Robust and maintained equipment
- Currently completely missing about 50% women who do not receive antenatal care,
- Also missing an additional 15-30% who attend ANC but do not have BP taken

Measuring urine protein

- Urine dipstick tests quite pricey
- Boiling not feasible in high volume sites



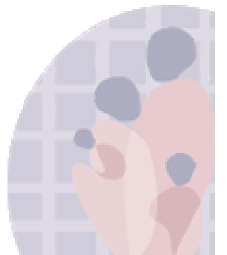


Towards detecting all PE that exists in a community



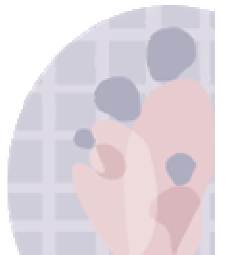
Managing Preeclampsia

- Monitoring for effects of PE on
 - Renal and other functions
 - Fetal growth and well being
- **Detecting severe Preeclampsia**
- Controlling high blood pressure
- Preventing Seizures : **Deciding when to institute Magnesium Sulphate therapy**
 - On confirming diagnosis of Severe Preeclampsia
 - In the context of severe Preeclampsia once decision to deliver has been made
- Timely Delivery / Care of term and preterm infants
- Postpartum vigilance and care



Choice of antihypertensive agents

- **Mild PE: up-to 109 Diastolic**
 - 24 trials, antihypertensives vs none
 - RR of severe PE: 0.52 (95% CI: 0.41-0.64)
 - NNT is 9-17 to prevent 1 case of Severe PE
 - 22 trials, comparison of drug
 - No clear differences between metyldopa and labetolol, nifedipine
 - Consider cost
- **Severe PE:diastolic over 110, proteinuria**
 - No clear differences
 - Hydralazine may have advantages due to low cost, slightly better newborn outcomes



Preventing Eclampsia

6 trials, 11,444 women: comparing magnesium sulphate versus placebo in women with severe preeclampsia

- Reduction in risk of Eclampsia by more than 50%
 - RR 0.41 (95 CI 0.29-0.58)
- Reduction in risk of Abruption placenta
 - RR 0.64 (95 % CI 0.50-0.83)
- Reduction in risk of maternal death by 46% (NS)
- Increased risk of side effects eg Flushing by 19%
- Increased risk of Cesarean section by 5%

Magpie Trial Collaborative Group. :
Lancet 2002.

Duley L, Gulmezoglu AM, Henderson-Smart
DJ.:

The Cochrane Library, 2006.

Treating Eclampsia

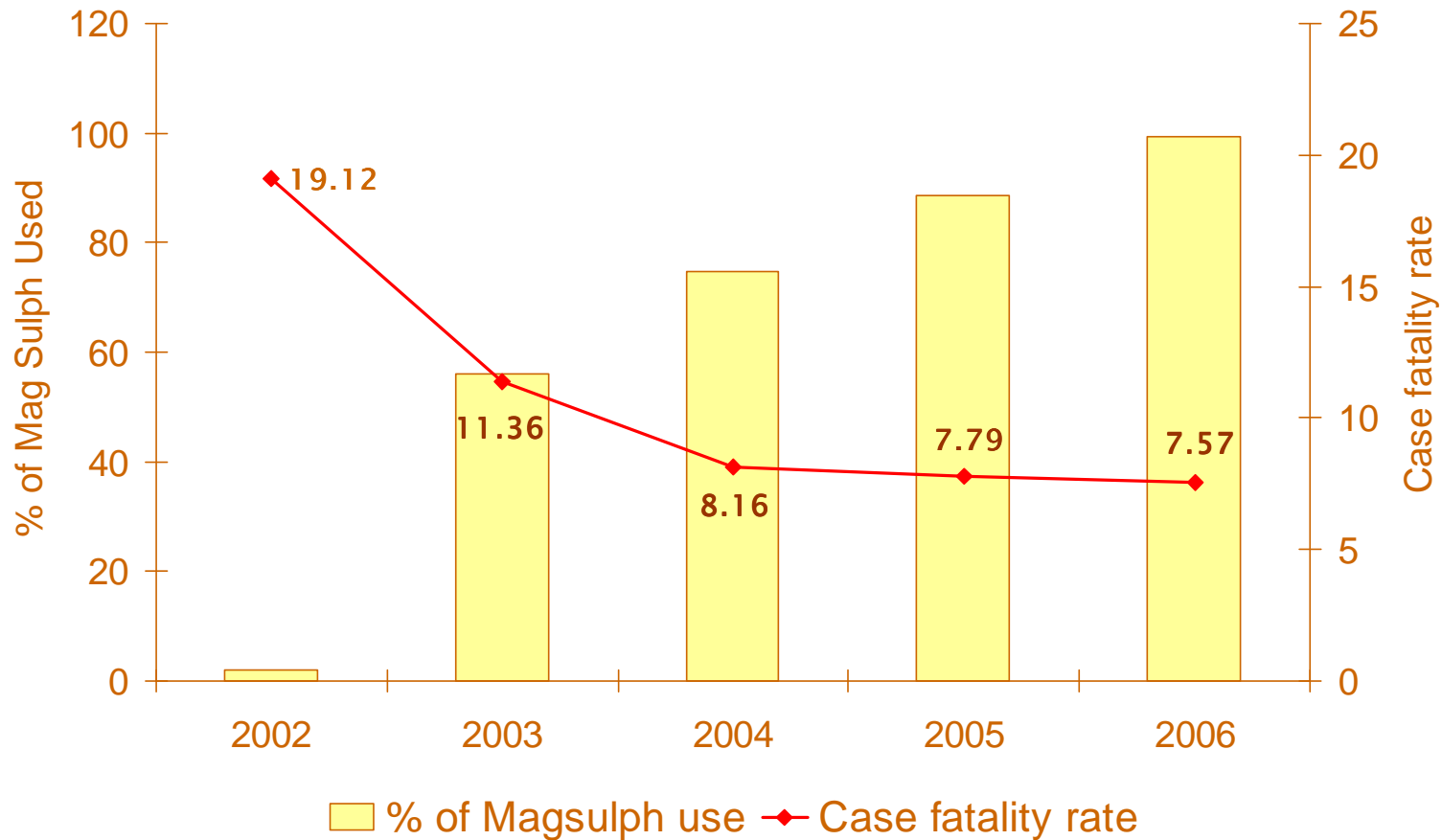
Comparison between magnesium sulphate and diazepam :5 trials
1236 women: comparison between magnesium sulphate and diazepam

- More than 50% reduction in recurrence of convulsions RR 0.45
95% CI 0.35-0.58
 - For every 7 women treated with mgSo4 rather than diazepam, 1 case of recurrent convulsions prevented
- Reduction in maternal mortality RR 0.60 (0.36-1.00)
- Reduction in low apgar at 5 minutes RR 0.72 (95% CI 0.55-0.94)

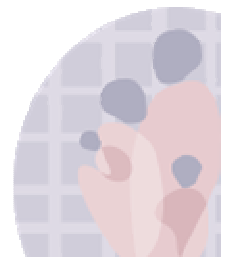
Duley L, Henderson-Smart D *The Cochrane Library*, 2006.



Use of magnesium Sulphate and case fatality rate in eclampsia, Sadar hospital, Purulia, West Bengal, India, 2002 - 2006



Trained 46 MO, 55 Nursing Personnel



Experience With Single Dose of MgSO₄ for Treatment of Eclampsia: DHAKA

A randomized trial with 401 patients comparing efficacy of loading dose alone versus standard regime

■ **Outcome:**

- Recurrent convulsion rate: 4.0% vs 3.5%.
- Case fatality rate: 4.5% vs 5.0%.

■ **Conclusion:** For majority of patients a single loading dose alone will suffice

■ **Implications:** This simplified treatment makes it possible to treat eclampsia even at home

If I Had the Chance...

ARTWORK FROM THE STREETS OF ASIA AND THE PACIFIC

Achieving Maximum Impact of reducing mortality from PE: From Household to Hospital

Preventing PE:

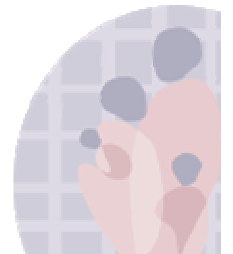
- Qualitative study to develop suitable educational message, and identify best approach to distributing calcium
- Use existing Community health volunteer network for CBD of calcium
- Monitor coverage, acceptability, safety, impact and program effort/cost

Detecting PE:

- Clinical detection of PE as standard AN service; monitor and supported at all levels
- Operations research in community detection of PE
- Strengthen referral centers

Treating severe PE & Eclampsia:

- Review and disseminate protocol for Magnesium sulphate, antiHt
- Revise policy on who and where magnesium sulphate can be made available
- Ensure sufficient supplies and monitor
- Monitor use of protocols in facilities



What Can this working group do

■ Catalyze:

- advocate for evidence based practice, and for simple interventions that can reach all women even if they do not come to health facilities

■ Collaborate:

- Introduction strategy and studies
 - Guidelines
 - Quality and performance improvement

■ Share :

- Spread knowledge and skills
- Empower midwives and nurses

2-3 years Goals:

1. Evidence based guidelines on management of Eclampsia and preeclampsia developed and adopted in 30 countries
2. Quality improvement approaches introduced to ensure adherence to standards for PE E management in 30 countries
2. SAFE type OR conducted on calcium supplementation, programs initiated in 5 countries
3. Options for community detection of PE explored
4. Communities educated and mobilized on all aspects of PEE

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ARTWORK FROM THE STREETS OF ASIA AND THE PACIFIC